

Applicants: Haller et al.
Serial No. 09/765,218
Page 3

CLAIMS

1. (currently amended) A communication system for at least one of monitoring the performance of an implantable medical device (IMD) implanted within a body of a patient, monitoring the health of the patient and remotely delivering a therapy to the patient through the IMD, the IMD being capable of bi-directional communication with a communication module located external to the patient's body, the system comprising:

- (a) the IMD;
- (b) the communication module;
- (c) a mobile telephone operably connected to the communication module and capable of receiving information therefrom or relaying information thereto;
- (d) a remote computer system;
- (e) a communication system capable of bi-directional communication with the mobile phone and the remote computer system; and
- (f) means for generating an invoice when communication is one of initiated between the IMD and the remote computer system, the IMD and the communication module, the communication module and the remote computer system, and the communication module and the communication system.

wherein the communication module further comprises means for at least one of: mining patient history, performing a performance parameter integrity check, and performing a software status check.

2. (Original) The system of claim 1, wherein the means for generating an invoice is incorporated into the communication system.

Applicants: Haller et al.
Serial No. 09/765,218
Page 4

3. (Original) The system of claim 1, wherein the means for generating an invoice is incorporated into a telephone system included in the communication system.
4. (Original) The system of claim 1, further comprising means for electronically transmitting generated invoices to at least one predetermined location for further processing and billing.
5. (Original) The system of claim 1, further comprising means for calculating the amount of each invoice in accordance with the number, type or frequency of services provided to the patient by the system.
6. (currently amended) The system of claim 1, further comprising means for calculating the amount of each invoice in accordance with the type or identification indicia stored in communication module ~~400~~ or IMD-40.
7. (Original) The system of claim 1, wherein the remote computer system further comprises means for making a remote diagnostic assessment of the patient's condition on the basis of the information relayed thereto by at least one of the IMD and the communication module.
8. (Original) The system of claim 7, wherein the means for generating an invoice further comprises means for generating an invoice in response to the remote diagnostic assessment being made.
9. (Original) The system of claim 7, wherein the remote computer system further comprises means for remotely executing a remedial response or therapy on the basis of the information relayed thereto by at least one of the IMD and the communication module.

Applicants: Haller et al.
Serial No. 09/765,218
Page 5

10. (Original) The system of claim 9, wherein the means for generating an invoice further comprises means for generating an invoice in response to the remote diagnostic assessment being made.
11. (Original) The system of claim 1, wherein the communication module is incorporated into the mobile telephone.
12. (Original) The system of claim 1, wherein the mobile telephone further comprises a Personal Data Assistant (PDA).
13. (Original) The system of claim 1, wherein the IMD and the communication module communicate with one another using radio-frequency telemetry.
14. (Original) The system of claim 1, wherein the means for generating an invoice is incorporated into at least one of a mobile telephone network, the Internet, a Local Area Network (LANs), a Wide Area Network (WAN), an Integrated Services Digital Network (ISDN), a Public Switched Telephone Network (PSTNs), a wireless network, an asynchronous transfer mode (ATM) network, and a satellite.
15. (Original) The system of claim 1, wherein the means for generating invoices further comprises means for generating automatic invoices in response to a patient-initiated, IMD-initiated, remote computer system-initiated, communication module-initiated, mobile phone-initiated and a PDA-initiated transmission or reception of information that one of originates in or relates to the IMD.
16. (currently amended) A communication system for at least one of monitoring the performance of an implantable medical device (IMD) implanted within a body of a patient, monitoring the health of the patient and remotely

Applicants: Haller et al.
Serial No. 09/765,218
Page 6

delivering a therapy to the patient through the IMD, the IMD being capable of bi-directional communication with at least one of a mobile telephone and a Personal Data Assistant (PDA) located external to the patient's body, the system comprising:

- (a) the IMD;
- (b) the at least one of the mobile telephone and the PDA, the at least one of the mobile telephone and the PDA being capable of receiving information from or relaying information to the IMD;
- (c) a remote computer system;
- (d) a communication system capable of bi-directional communication with the at least one of the mobile telephone and the PDA;
- (e) means for generating an invoice when communication is one of initiated between the IMD and the remote computer system, the IMD and the at least one of the mobile telephone and the PDA, the at least one of the mobile telephone and the PDA and the remote computer system, and the at least one of the mobile telephone and the PDA and the communication system.

wherein the communication system further comprises means for at least one of: mining patient history, performing a performance parameter integrity check, and performing a software status routine.

17. (Original) The system of claim 16, wherein the means for generating an invoice is incorporated into the communication system.

18. (Original) The system of claim 16, wherein the means for generating an invoice is incorporated into a telephone system included in the communication system.

Applicants: Haller et al.
Serial No. 09/765,218
Page 7

19. (Original) The system of claim 16, further comprising means for electronically transmitting generated invoices to at least one predetermined location for further processing and billing.
20. (Original) The system of claim 16, further comprising means for calculating the amount of each invoice in accordance with the number, type or frequency of services provided to the patient by the system.
21. (currently amended) The system of claim 16, further comprising means for calculating the amount of each invoice in accordance with the type or identification indicia stored in the communication module ~~100~~ or the IMD-10.
22. (Original) The system of claim 16, wherein the remote computer system further comprises means for making a remote diagnostic assessment of the patient's condition on the basis of the information relayed thereto by at least one of the IMD and the at least one of the mobile telephone and the PDA.
23. (Original) The system of claim 22, wherein the means for generating an invoice further comprises means for generating an invoice in response to the remote diagnostic assessment being made.
24. (Original) The system of claim 22, wherein the remote computer system further comprises means for remotely executing a remedial response or therapy on the basis of the information relayed thereto by at least one of the IMD and the communication module.
25. (Original) The system of claim 24, wherein the means for generating an invoice further comprises means for generating an invoice in response to the remote diagnostic assessment being made.

Applicants: Haller et al.
Serial No. 09/765,218
Page 8

26. (Original) The system of claim 16, wherein the mobile telephone and the Personal Data Assistant (PDA) for a single unit.
27. (Original) The system of claim 16, wherein the IMD and the at least one of the mobile telephone and the PDA communicate with one another using radio-frequency telemetry.
28. (Original) The system of claim 16, wherein the means for generating an invoice is incorporated into at least one of a mobile telephone network, the Internet, a Local Area Network (LANs), a Wide Area Network (WAN), an Integrated Services Digital Network (ISDN), a Public Switched Telephone Network (PSTNs), a wireless network, an asynchronous transfer mode (ATM) network, and a satellite.
29. (Original) The system of claim 16, wherein the means for generating invoices further comprises means for generating automatic invoices in response to a patient-initiated, IMD-initiated, remote computer system-initiated, communication module-initiated, mobile phone-initiated and a PDA-initiated transmission or reception of information that one of originates in or relates to the IMD.
30. (currently amended) A communication module for use in a system for at least one of monitoring the performance of an Implantable medical device (IMD) implanted within a body of a patient, monitoring the health of the patient and remotely delivering a therapy to the patient through the IMD, the IMD being capable of bi-directional communication with a communication module located external to the patient's body, wherein the system comprises the IMD, the communication module, a mobile telephone capable of being operably connected to the communication module and capable of receiving information therefrom or relaying information thereto, means for generating an invoice in response to

Applicants: Haller et al.
Serial No. 09/765,218
Page 9

information relating to the IMD being relayed or transmitted from or to the mobile phone, a remote computer system, and a communication system capable of bi-directional communication with the mobile phone and the remote computer system, wherein the communication module further comprises means for: mining patient history, performing a performance parameter integrity check, and performing a software status routine.

31. (currently amended) At least one of a mobile telephone and a Personal Data Assistant (PDA) for use in a system for at least one of monitoring the performance of an implantable medical device (IMD) implanted within a body of a patient, monitoring the health of the patient and remotely delivering a therapy to the patient through the IMD, the IMD being capable of bi-directional communication with the at least one of the mobile telephone and the PDA located external to the patient's body, wherein the system comprises the IMD, the at least one of the mobile telephone and the PDA, the at least one of the mobile telephone and the PDA being capable of receiving information from or relaying information to the IMD, means for generating an invoice in response to information relating to the IMD being relayed or transmitted from or to the at least one of the mobile telephone and the PDA, a remote computer system, and a communication system capable of bi-directional communication with the at least one of the mobile telephone and the PDA, wherein the communications system is adapted to detect whether at least one of a component defect and a software defect exists within one of the IMD exists and the remote computer system, and in the event that the component defect or software defect is detected, means for determining whether a remote repair available, and if not, means for broadcasting an alert to at least one of: a remote health care provider, a remote computer, a remote expert-based computer system.

Applicants: Haller et al.
Serial No. 09/765,218
Page 10

32. (currently amended) A computer readable medium for storing instructions for performing a method, said method involving ~~of~~ generating an invoice for the provision of medical services relating to communicating information between an implantable medical device (IMD) implanted in a patient and a remote computer system, the method utilizing a system for at least one of monitoring the performance of the IMD, monitoring the health of the patient and remotely delivering a therapy to the patient through the IMD, the IMD being capable of bi-directional communication with a communication module located external to the patient's body, the system comprising the IMD, the communication module, a mobile telephone capable of being operably connected to the communication module and capable of receiving information therefrom or relaying information thereto, means for generating an invoice in response to information relating to the IMD being relayed or transmitted from or to the mobile phone, a remote computer system, and a communication system capable of bi-directional communication with the mobile phone and the remote computer system, the medium method ~~method~~ comprising:

- (a) instructions for operating ~~at least one of the patient and the IMD to determine ing that whether medical attention~~ should be provided;
- (b) in response to the determination made in step (a), instructions for uploading data from the IMD to the communication module;
- (c) instructions for transferring the data from the communication module to the mobile telephone and thence on to the remote computer system via the communication system;
- (d) instructions for remotely analyzing the data;
- (e) instructions for determining on the basis of the analyzed data whether remedial action respecting at least one of the IMD and the patient is required;
- (f) instructions for remotely executing the determined remedial action via the communication system, and

Applicants: Haller et al.
Serial No. 09/765,218
Page 11

(g) instructions for automatically generating an invoice in response to at least one of steps (a), (b), (c), (d), (e) and (f) being carried out, wherein the communications module is adapted to detect whether at least one of a component defect and a software defect exists within one of the IMD exists and the remote computer system, and in the event that the component defect or software defect is detected, means for determining whether a remote repair available, and if not, means for broadcasting an alert to at least one of: a remote health care provider, a remote computer, a remote expert-based computer system.

Applicants: Haller et al.
Serial No. 09/765,218
Page 12

33. (currently amended) A computer readable medium for storing instructions for performing a method, said method involving ~~of~~ communicating information between an Implantable medical device (IMD) Implanted in a patient and a remote computer system, the method utilizing a system for at least one of monitoring the performance of the IMD, monitoring the health of the patient and remotely delivering a therapy to the patient through the IMD, the IMD being capable of bi-directional communication with at least one of a mobile telephone and a Personal Data Assistant (PDA) located external to the patient's body, wherein the system comprises the IMD, the at least one of the mobile telephone and the PDA, the at least one of the mobile telephone and the PDA being capable of receiving information from or relaying information to the IMD, means for generating an invoice in response to information relating to the IMD being relayed or transmitted from or to the at least one of the mobile telephone and the PDA, a remote computer system, and a communication system capable of bi-directional communication with the at least one of the mobile telephone and the PDA the ~~method-medium~~ comprising:

- (a) ~~the patient or~~ instructions for operating the IMD to determine ing that whether medical attention should be provided;
- (b) Instructions for uploading data from the IMD to the at least one of the mobile telephone and the PDA communication module;
- (c) instructions for transferring the data from the at least one of the mobile telephone and the PDA to the remote computer system via the communication system;
- (d) instructions for remotely analyzing the data;
- (e) instructions for determining on the basis of the analyzed data whether remedial action respecting at least one of the IMD and the patient is required;
- (f) instructions for remotely executing the determined remedial action via the communication system, and

Applicants: Haller et al.
Serial No. 09/765,218
Page 13

(g) instructions for automatically generating an invoice in response to at least one of steps (a), (b), (c), (d), (e) and (f) being carried out, wherein the communication system further comprises instructions for mining patient history, at least one performance parameter integrity and a software status metric.